

SN. 10/720,738

ATTORNEY DOCKET No. FUJI:280

IN THE DRAWINGS

Applicants submit replacement sheets 1, 13, 15, 17, 21, 36, and 37 for the examiner's approval. Specifically, Figs. 1, 13, 16, and 19 had some reference numerals blocked off.

Replacement sheets 1, 13, 15, and 17 corrects this problem. Figs. 26, 56, and 57 have been amended to correctly show the cross-sectional views. The changes are based on the original figures. Applicants submit that the present amendment to the drawings do not introduce any new matter.

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REMARKS

Claims 1, 3-8, 13-15, 17, 21, and 23-29 are now pending in this application for which applicants seek reconsideration.

Amendment

Figs. 1, 13, 16, and 19 have been resubmitted, now showing references that have been blocked off. Figs. 26, 56, and 57 have been amended to properly show the cross sections.

Claims 2, 9-12, 16, 18-20, and 22 have been canceled, new claims 24-29 have been added, and claims 1, 3-8, 13-15, 17, 21, and 23 have been amended. Specifically, claim 1 has been amended to define that the trench comprises a plurality of first trench sections and a plurality of second trench sections, and that a plurality of active regions are formed on the substrate, each for driving current as a semiconductor element. Claim 1 also incorporates canceled claim 2 and other aspects of the invention, namely a first conductor formed with an insulator film interposed therebetween in the first, second, and third trench sections, and the width of each of the second and third trench sections being smaller than the width of each of the first trench sections. Withdrawn claim 23 has been amended to parallel claim 1. Claim 8 has been placed in independent form, without the intervening claim 2. New independent claim 24 is similar to claim 1, except that it does not recite a third trench section, and both the first and second diffusion regions are formed at the bottom of the first and second trench sections, respectively.

No new matter has been introduced.

Restriction & Rejoinder

Applicants affirm the election of Group I, claims 1-22. As non-elected claim 23 contains all of the elements of claim 1, when claim 1 is allowed, claim 23 **MUST** be rejoined and allowed together. In other words, per the decision in *In re Ochiai*, 71 F.3d 1565, 37 USPQ 1127 (Fed. Cir. 1995), if a method claim contains all of the elements of an allowed apparatus claim, then the method claim is allowable. See also MPEP § 821.04.

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Art Rejection

Claims 1-22 were rejected under 35 U.S.C. § 103(a) as unpatentable over Fujishima (USP 5,701,026) in view of Saitoh (USP 6,693,338). Applicants traverse this rejection because these references, even if deemed properly combinable for argument's sake, would not have taught the trench configuration set forth in claims 1 and 24, and the trench lateral transistor structure set forth in claim 8.

Independent claim 1 now recites that the trench comprises a plurality of first trench sections formed in the active regions, a plurality of second trench sections intersecting the first trench sections to form a mesh pattern surrounding the non-trench region, and at least one third trench section connected to the first or second trench sections or both the first and second trench sections to divide the non-trench region into a plurality of smaller regions. A first conductor is formed with an insulator film interposed therebetween in the first, second, and third trench sections. Moreover, the width of each of the second and third trench sections is smaller than the width of each of the first trench sections. New independent claim 24 is similar to claim 1, except that it does not recite the third trench section and both the first and second diffusion regions are formed at the bottom of the first and second trench sections, respectively.

The examiner correctly assessed that Fujishima does not disclose or teach the claimed second or third trench sections. In this respect, the examiner relied upon Saitoh for the proposition that providing second and third trench sections would have been obvious. Applicants disagree with the examiner's assessment because Saitoh fails to disclose the second and third trench sections that divide the non-trench region into a plurality of smaller regions, particularly where the width of the second/third trench section is smaller than the width of the first trench section. Fujishima simply would not have taught such a structure.

Specifically, in rejecting claim 2, which is not incorporated in claim 1, the examiner argued that Saitoh's Fig. 24F and column 25, lines 25-44 teach the third trench section. Applicants disagree. Fig. 24F and the above passage state nothing about dividing a non-trench section into a plurality of smaller non-trench section by connecting the trench sections. Saitoh merely states that a pair of RESURF layers 36 can be nested between the pair of RESURF layers 18. Stacking or nesting these layers is not tantamount to creating smaller non-trench

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sections by connecting the trench sections. Indeed, nesting does not connect trench sections, but rather separates them. Should the examiner maintain the same rejection, applicants request the examiner to explain in detail where or how Saitoh discloses the claimed third trench section. Applicants submit that Saitoh is completely silent regarding the third trench section. Accordingly, applicants submit that the combination, even if deemed proper, would not have taught the claimed invention.

As to claims 1 and 24, applicants submit that Saitoh similarly would not have taught the second trench sections with the width of the second trench section smaller than the width of the first trench section. The examiner relied on Saitoh's Figs. 19A-31 and the passage set forth in column 29, lines 18-35 for the proposition that Saitoh teaches a second trench section that intersects the first trench section to form a mesh pattern surrounding the non-trench region. Again, applicants disagree. Although Saitoh discloses that the RESURF layers 18 can be laid out in a stripe pattern, mesh pattern, or staggered pattern, Saitoh does not state that the mesh pattern is formed by connecting the trench sections having different widths. Accordingly, applicants submit that the combination, even if deemed properly combinable for argument's sake, would not have taught the claimed structure set forth in claims 1 and 24.

Further, claim 24 recites that both the first and second diffusion regions are formed at the bottom of the first and second trench sections, respectively. Applicants submit that the applied references also would not have taught this feature.

Regarding claim 8, applicants submit that the examiner has not explained how the references are being combined and applied. The examiner states that Saitoh discloses source layer 13 in Fig. 24F. So how does that relate to Fujishima's structure? Applicants submit that the rejection is quite unclear. Should the examiner maintain the same rejection, applicants request the examiner to explain item by item, what element corresponds to the claimed structure. Indeed, the examiner merely reiterated the claimed features, but failed to correlate to any specific elements of Fujishima. To the extent that the examiner has failed to account for what Fujishima and Saitoh teaches, applicants submit that the examiner has not met the burden of proving a *prima facie* case of obviousness. Applicants submit that claim 8 distinguishes over the applied references.

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Conclusion

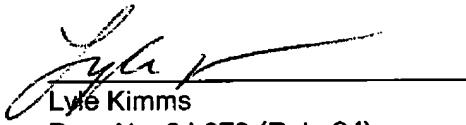
Applicants submit that the pending claims patentably distinguish over the applied references and are in condition for allowance. Should the examiner maintain the same rejection, applicants request the examiner to clearly identify the elements corresponding to the claimed elements by reference number of the applied references. Should the examiner have any issues concerning this reply or any other outstanding issues remaining in this application, applicants urge the examiner to contact the undersigned to expedite prosecution.

Respectfully submitted,

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Date


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